# 21-GP1-193 Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

Adds new code section regulating compressed air systems. Language it taken from proposed Title 24 2022 language and is similar but much more comprehensive to City of Seattle requirements. Intent is that this would apply to process loads.

Increased first costs and decreased utility bills. The costs and saving are determined from Title 24 CASE Reports. In both reports portions of the requirements were evaluated in 4 prototypes. For each requirement, data from the prototype where it was least cost effective was used to evaluate the measure in the OFM calculator. Thus the estimate cost benefit is very conservative

Pipe Sizing, Monitoring, and Leak Testing for Compressed Air Systems. Final Case Report. Sept 2020. Prepared by AESC, Inc. and Energy Solutions. Available at: https://title24stakeholders.com/wp-content/uploads/2020/06/NR-Compressed-Air_Draft-CASE-Report.pdf

Available at: https://title24stakeholders.com/wp-content/uploads/2020/01/T24-2013-Final-CASE-Report-AirCompressors.pdf

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)
$0/square foot (For residential projects, also provide $0/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

No independent cost estimate was made. Costs and saving are determined from Title 24 Case reports.

| Requirement | T24 Worst Case | Initial Cost | Annual Energy Savings | Ongoing expense |
|---|---|---|---|---|
| Auto-shut down timer | Prototype 3 | $6173 | 7025kWh | |
| Trim Compressor | Operating Profile 3 / 25 hp | $4000 | 8293kWh | |
| Pipe Sizing | Prototype 4 | $272982 | 210147 kWh | |
| Monitoring | Prototype 1 | $10685 | 42058 kWh | $300/yr data services for 2 comps + $500 every 5 for calibration |
| Leak Testing | Prototype 3 | $3342 | 6548 kWh | |

OFM Calculator Summary

Smart Controls

| Life Cycle Cost Analysis | | BEST | |
|---|---|---|---|
| Alternative | Baseline | Alt. 1 | Alt. 2 |
| Energy Use Intenstity (kBtu/sq.ft) | #DIV/0! | #DIV/0! | #DIV/0! |
| 1st Construction Costs | $ - | $ 6,173 | $ - |
| PV of Capital Costs | $ - | $ 15,237 | $ - |
| PV of Maintenance Costs | $ - | $ - | $ - |
| PV of Utility Costs | $ 333,677 | $ 310,236 | $ 333,677 |
| **Total Life Cycle Cost (LCC)** | **$ 333,677** | **$ 325,474** | **$ 333,677** |
| **Net Present Savings (NPS)** | **N/A** | **$ 8,204** | **$ -** |

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

| (GHG) Social Life Cycle Cost | | BEST | |
|---|---|---|---|
| GHG Impact from Utility Consumption | Baseline | Alt. 1 | Alt. 2 |
| Tons of CO2e over Study Period | 2,059 | 1,915 | 2,059 |
| % CO2e Reduction vs. Baseline | N/A | 7% | 0% |
| Present Social Cost of Carbon (SCC) | $ 130,707 | $ 121,525 | $ 130,707 |
| **Total LCC with SCC** | **$ 464,385** | **$ 446,999** | **$ 464,385** |
| **NPS with SCC** | **N/A** | **$ 17,386** | **$ -** |

Trim Compressor

| Life Cycle Cost Analysis | | BEST | |
|---|---|---|---|
| Alternative | Baseline | Alt. 1 | Alt. 2 |
| Energy Use Intenstity (kBtu/sq.ft) | #DIV/0! | #DIV/0! | #DIV/0! |
| 1st Construction Costs | $ - | $ 4,000 | $ - |
| PV of Capital Costs | $ - | $ 9,873 | $ - |
| PV of Maintenance Costs | $ - | $ - | $ - |
| PV of Utility Costs | $ 333,677 | $ 306,005 | $ 333,677 |
| **Total Life Cycle Cost (LCC)** | **$ 333,677** | **$ 315,879** | **$ 333,677** |
| **Net Present Savings (NPS)** | **N/A** | **$ 17,798** | **$ -** |

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

| (GHG) Social Life Cycle Cost | | BEST | |
|---|---|---|---|
| GHG Impact from Utility Consumption | Baseline | Alt. 1 | Alt. 2 |
| Tons of CO2e over Study Period | 2,059 | 1,888 | 2,059 |
| % CO2e Reduction vs. Baseline | N/A | 8% | 0% |
| Present Social Cost of Carbon (SCC) | $ 130,707 | $ 119,868 | $ 130,707 |
| **Total LCC with SCC** | **$ 464,385** | **$ 435,747** | **$ 464,385** |
| **NPS with SCC** | **N/A** | **$ 28,638** | **$ -** |

**All questions must be answered to be considered complete. Incomplete proposals will not be accepted.**

Pipe Sizing

| Life Cycle Cost Analysis | | BEST | |
|---|---|---|---|
| Alternative | Baseline | Alt. 1 | Alt. 2 |
| Energy Use Intenstity (kBtu/sq.ft) | #DIV/0! | #DIV/0! | #DIV/0! |
| 1st Construction Costs | $ - | $ 272,982 | $ - |
| PV of Capital Costs | $ - | $ 673,819 | $ - |
| PV of Maintenance Costs | $ - | $ - | $ - |
| PV of Utility Costs | $ 3,336,772 | $ 2,635,559 | $ 3,336,772 |
| **Total Life Cycle Cost (LCC)** | **$ 3,336,772** | **$ 3,309,378** | **$ 3,336,772** |
| **Net Present Savings (NPS)** | **N/A** | **$ 27,394** | **$ -** |

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

| (GHG) Social Life Cycle Cost | | BEST | |
|---|---|---|---|
| GHG Impact from Utility Consumption | Baseline | Alt. 1 | Alt. 2 |
| Tons of CO2e over Study Period | 20,592 | 16,265 | 20,592 |
| % CO2e Reduction vs. Baseline | N/A | 21% | 0% |
| Present Social Cost of Carbon (SCC) | $ 1,307,074 | $ 1,032,396 | $ 1,307,074 |
| **Total LCC with SCC** | **$ 4,643,845** | **$ 4,341,774** | **$ 4,643,845** |
| **NPS with SCC** | **N/A** | **$ 302,071** | **$ -** |

Monitoring

| Life Cycle Cost Analysis | | BEST | |
|---|---|---|---|
| Alternative | Baseline | Alt. 1 | Alt. 2 |
| Energy Use Intenstity (kBtu/sq.ft) | #DIV/0! | #DIV/0! | #DIV/0! |
| 1st Construction Costs | $ - | $ 10,685 | $ - |
| PV of Capital Costs | $ - | $ 26,374 | $ - |
| PV of Maintenance Costs | $ - | $ 13,601 | $ - |
| PV of Utility Costs | $ 3,336,772 | $ 3,196,434 | $ 3,336,772 |
| **Total Life Cycle Cost (LCC)** | **$ 3,336,772** | **$ 3,236,409** | **$ 3,336,772** |
| **Net Present Savings (NPS)** | **N/A** | **$ 100,362** | **$ -** |

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

| (GHG) Social Life Cycle Cost | | BEST | |
|---|---|---|---|
| GHG Impact from Utility Consumption | Baseline | Alt. 1 | Alt. 2 |
| Tons of CO2e over Study Period | 20,592 | 19,726 | 20,592 |
| % CO2e Reduction vs. Baseline | N/A | 4% | 0% |
| Present Social Cost of Carbon (SCC) | $ 1,307,074 | $ 1,252,101 | $ 1,307,074 |
| **Total LCC with SCC** | **$ 4,643,845** | **$ 4,488,510** | **$ 4,643,845** |
| **NPS with SCC** | **N/A** | **$ 155,335** | **$ -** |

Leak Detection

| Life Cycle Cost Analysis | | BEST | |
|---|---|---|---|
| Alternative | Baseline | Alt. 1 | Alt. 2 |
| Energy Use Intenstity (kBtu/sq.ft) | #DIV/0! | #DIV/0! | #DIV/0! |
| 1st Construction Costs | $ - | $ 3,342 | $ - |
| PV of Capital Costs | $ - | $ 8,249 | $ - |
| PV of Maintenance Costs | $ - | $ - | $ - |
| PV of Utility Costs | $ 3,336,772 | $ 3,314,923 | $ 3,336,772 |
| **Total Life Cycle Cost (LCC)** | **$ 3,336,772** | **$ 3,323,172** | **$ 3,336,772** |
| **Net Present Savings (NPS)** | **N/A** | **$ 13,600** | **$ -** |

Societal LCC takes into consideration the social cost of carbon dioxide emissions caused by operational energy consumption

| (GHG) Social Life Cycle Cost | | BEST | |
|---|---|---|---|
| GHG Impact from Utility Consumption | Baseline | Alt. 1 | Alt. 2 |
| Tons of CO2e over Study Period | 20,592 | 20,457 | 20,592 |
| % CO2e Reduction vs. Baseline | N/A | 1% | 0% |
| Present Social Cost of Carbon (SCC) | $ 1,307,074 | $ 1,298,515 | $ 1,307,074 |
| **Total LCC with SCC** | **$ 4,643,845** | **$ 4,621,687** | **$ 4,643,845** |
| **NPS with SCC** | **N/A** | **$ 22,159** | **$ -** |

**All questions must be answered to be considered complete. Incomplete proposals will not be accepted.**

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

This proposal will require jurisdictions to review compressed air designs and verify testing and monitoring. A complete guess but maybe 4 hours per permit that has systems of this scale which is a small fraction of the total permits.

**All questions must be answered to be considered complete. Incomplete proposals will not be accepted.**